

Claims

1. Drive (10, 32), in particular for rotary, pivotal or linear drive units, comprising a working piston (16) which is housed in a cylinder (12) of a housing (14), can be loaded by fluid pressure media and can be displaced in an axial direction, characterized in that mechanical coupling means (22, 24) are provided on the working piston (16), which can be coupled to a motor (30) in such a fashion that the motor (30) can decelerate and/or drive the working piston in an axial direction.
2. Drive (10) according to claim 1, characterized in that the mechanical coupling means (22, 24) comprise a spindle nut (22) or spindle rod disposed on the working piston (16), and a spindle rod (24) or a spindle nut which can be driven by the motor.
3. Drive (10) according to claim 1, characterized in that the mechanical coupling means comprise a toothed rack which is disposed on the working piston, and a pinion which can be driven by the motor.
4. Drive (32) according to claim 1, characterized in that the mechanical coupling means comprise a worm wheel (34) which is rotated by the working piston (14, 16) via a rotary coupling, and a worm (36) which can be driven by the motor (30) and which engages the worm wheel (34).
5. Drive (10, 32) according to any one of the preceding claims, characterized in that the coupling means (22, 24) work without self-locking.

6. Drive (10, 32) according to any one of the preceding claims, characterized in that the motor (30) may be flanged to the housing (14) or is disposed within the housing (14).
7. Drive (10, 32) according to any one of the preceding claims, characterized in that a regulation and/or control unit is provided which controls the motor (30) in dependence on the position and/or the temporal change of position of the working piston (16) and/or on the respective pressure and/or the temporal change of the respective pressure in the pressure chambers (18, 20) of the cylinder.
8. Drive (10, 32) according to any one of the preceding claims, characterized in that a regulation and/or control unit is provided which directly controls the pressure in the pressure chambers (18, 18) of the cylinder when a limit load of the motor (30) has been reached, to reduce the motor load and/or to support motion of the working piston (16) effected or controlled by the motor (30).
9. Drive (10, 32) according to any one of the preceding claims, characterized in that the coupling means have a high transmission ratio.
10. Drive (10) according to any one of the preceding claims, which is suited for a rotary or pivotal drive unit, characterized in that the working piston (16) is operatively connected, via a rotary coupling, to a pivot part which is rotatably disposed in the housing.
11. Rotary, pivotal or linear drive units comprising a drive (10, 32) according to any one of the preceding claims.

12. Method for operating a drive (10, 32) according to any one of the claims 1 through 10 and/or a drive unit according to claim 11, characterized in that, when the cylinder (12) is loaded to move the working piston (16), the motor (30) also rotates at least substantially without load or supports the motion of the working piston (16), the motor (30) being driven to decelerate motion of the working piston (16) upon or shortly before reaching a target position of the working piston (16).
13. Method according to claim 12, characterized in that the pressure in the respective pressure chamber (18, 20) of the cylinder is reduced and/or a counter pressure is built up upon or shortly before reaching a target position of the working piston (16).
14. Method according to claim 12 or 13, characterized in that the motor (30) is driven in dependence on the position and/or the temporal change of the position of the working piston (16) and/or the respective pressure and/or the temporal change of the respective pressure in the pressure chambers (18, 20) of the cylinder.
15. Method according to claim 12, 13 or 14, characterized in that, when a limit load on the motor has been reached, the respective pressure in the pressure chambers (18, 20) of the cylinder is controlled in such a manner that the motor load is reduced and/or the motion of the working piston (16) effected or controlled by the motor (30) is supported.